

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 10744 (1983): Resorcinol [PCD 9: Organic Chemicals
Alcohols and Allied Products and Dye Intermediates]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 10744 - 1983

१६६०
"REAFFIRMED 1990"

Indian Standard
SPECIFICATION FOR
RESORCINOL

UDC 547.565.2



© Copyright 1984

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR RESORCINOL

Organic Chemicals (Miscellaneous) Sectional Committee, PCDC 9

Chairman

Representing

SHRI S. RAMASWAMY

Directorate General of Technical Development,
New Delhi

Members

SHRI G. S. APTE	Indian Chemical Manufacturer's Association, Calcutta
SHRI M. S. RAMAMURTHY (<i>Alternate</i>)	
SHRI P. V. ARUR	Hindustan Organic Chemicals Ltd, Rasayani
SHRI H. K. VENKATARAMAIAH (<i>Alternate</i>)	
SHRI J. A. ASHTAPUTRE	Ministry of Defence (DGI), New Delhi
SHRI T. CHAKRAVARTY (<i>Alternate</i>)	
SHRI R. A. BAKSHI	Indian Organic Chemicals Ltd, Khopoli
SHRI S. H. KILLEDAR (<i>Alternate</i>)	
DR P. K. BANERJEE	Hindustan Lever Ltd, Bombay
DR S. U. KULKARNI (<i>Alternate</i>)	
DR B. K. BHATTACHARJEE	Durgapur Chemicals Ltd, Durgapur
SHRI T. S. BIDDAPA	National Organic Chemicals Industries, Bombay
SHRI K. N. HATTIANGADI (<i>Alternate</i>)	
DR S. K. DATTA	National Peroxide, Bombay
SHRI K. RAMAMURTHY (<i>Alternate</i>)	
SHRI V. R. DUBEY	Carbide Chemicals Co, Division of Union Carbide, Bombay
SHRI K. C. SAH (<i>Alternate</i>)	
SHRI R. V. GOKHALE	Herdillia Chemicals Ltd, Bombay
DR R. L. HASIJA	State Trading Corporation of India Ltd, New Delhi
HEAD, RESEARCH & DEVELOPMENT CENTRE	Indian Petrochemicals Corporation Ltd, Vadodara
MANAGER (LABORATORY) (<i>Alternate</i>)	
SHRI P. R. MALHAN	The Development Commissioner, Small Scale Industries, New Delhi
SHRI D. P. SINGH (<i>Alternate</i>)	

(Continued on page 2)

© Copyright 1984

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI P. MAZUMDAR	National Test House, Calcutta
SHRI S. GHOSH (Alternate)	
SHRI C. K. MEHROTRA	Export Inspection Council of India, Calcutta
SHRI S. S. CHOPRA (Alternate)	
SHRI V. K. MENON	Amar Dye-Chem Ltd, Bombay
DR T. H. MAWANI (Alternate)	
SHRI P. JAYA KUMARAN NAIR	Directorate General of Supplies & Disposals, Inspection Wing, New Delhi
SHRI K. D. PATEL	Gujarat State Fertilizers Co Ltd, Vadodara
SHRI S. L. AGARWAL (Alternate)	
SHRI S. B. PHADKE	Hindustan Antibiotics Ltd, Pune
DR R. C. SEKHAR	I. C. I (India) Pvt Ltd, Calcutta
DR N. K. BASU (Alternate)	
DR D. R. SHRIDHAR	Indian Drugs and Pharmaceuticals Ltd, New Delhi
SHRI B. S. TRIVEDI (Alternate)	
DR HARI SINGH	Ministry of Defence (R & D), New Delhi
DR P. S. VENKATARAMANI (Alternate)	
DR R. V. VENKATARATNAM	Regional Research Laboratory (CSIR), Hyderabad
DR J. MADHUSUDANA RAO (Alternate)	
SHRI M. S. SAXENA, Director (P & C)	Director General, ISI (Ex-officio Member)

Secretary
SHRI A. KAR
Deputy Director (P & C), ISI

Industrial Organic Chemicals Subcommittee, PCDC 9 : 14

Convener

DR G. RAMANA RAO Indian Drugs & Pharmaceuticals Ltd, New
Delhi

Members

SHRI S. RAGHUVeer (Alternate to
Dr G. Ramana Rao)

SHRI K. D. AMRE National Organic Chemical Industries Ltd,
Bombay

SHRI K. N. HATTIANGADI (Alternate)

DR M. C. BADARINARAYANA Bayer (India) Ltd, Bombay

DR V. K. HONWAD (Alternate)

SHRI N. M. BRAHMBHATT Aegis Chemical Industries Ltd, Bombay

SHRI A. P. MODY (Alternate)

SHRI R. B. DESAI Cibatul Ltd, Atul

DR S. K. SINHA (Alternate)

DR P. V. DESHMUKH Hindustan Antibiotics Ltd, Pune

DR G. R. DESHPANDE (Alternate)

(Continued on page 10)

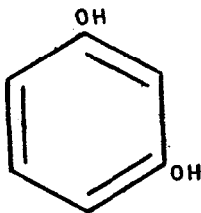
Indian Standard

SPECIFICATION FOR RESORCINOL

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 8 December 1983, after the draft finalized by the Organic Chemicals (Miscellaneous) Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

0.2 Resorcinol or resorcline, $C_6H_4(OH)_2$, is chemically described as 3-hydroxy phenol which is white crystals becoming pink on exposure to light. It is used in the manufacture of styphnic acid tanning agents, synthetic resin adhesives, pharmaceuticals, dyes, celluloid (camphor substitute) and rubber tackifiers. It is represented by the following structural formula.



RESORCINOL
(MOLECULAR MASS 110.11)

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for resorcinol.

*Rules for rounding off numerical values (revised).

2. REQUIREMENTS

2.1 Description — The material shall consist essentially of *m*-dihydroxy benzene in the form of clean white flakes or crystalline powder/lumps. When melted, the melt shall have a colour not darker than pale straw and shall be free from grit and suspended matter.

2.2 The material shall also comply with the requirements given in Table 1 when tested according to the test methods prescribed in Appendix A. Reference to the relevant clauses of the appendix is given in col 4 of the table.

TABLE 1 REQUIREMENTS FOR RESORCINOL

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST (REF TO CL No. IN APPENDIX A)
(1)	(2)	(3)	(4)
i)	Crystallizing point, °C, <i>Min</i>	109.0	A-2
ii)	Moisture, percent by mass, <i>Max</i>	0.5	A-3
iii)	Purity, percent by mass, <i>Min</i>	98.5	A-4
iv)	Sulphated ash, percent by mass, <i>Max</i>	0.1	A-5
v)	Free phenol	To pass the test	A-6
vi)	Matter insoluble in water, percent by mass, <i>Max</i>	0.03	A-7

3. PACKING AND MARKING

3.1 Packing — The material shall be suitably packed to protect against sunlight and moisture. The quantity per package shall be 25 kg or as agreed to between the supplier and the purchaser.

3.2 Marking — Each container shall be securely closed and shall bear legibly and indelibly the following information:

- Name of the material;
- Name of the manufacturer and his trade-mark, if any;
- Lot or batch number in code or otherwise; and
- Gross, net and tare mass.

3.2.1 The containers may also be marked with the ISI Certification Mark.

NOTE—The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

4. SAMPLING

4.1 Representative samples of the material shall be drawn and their conformity to the standard determined as prescribed in Appendix B.

A P P E N D I X A

(Clause 2.2)

METHODS OF TEST FOR RESORCINOL

A-1. QUALITY OF REAGENTS

A-1.1 Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977*) shall be employed in the tests.

NOTE—Pure chemicals shall mean chemicals that do not contain impurities which affect the results of analysis.

A-2. DETERMINATION OF CRYSTALLIZING POINT

A-2.1 Procedure—Carry out the determination of crystallizing point according to the method as prescribed in IS : 5813-1970†.

A-3. DETERMINATION OF MOISTURE

A-3.1 Carry out the determination of moisture according to the method as prescribed in IS : 2362-1973‡.

A-4. DETERMINATION OF PURITY

A-4.1 Reagents

*Specification for water for general laboratory use (*second revision*).

†Method for determination of crystallizing point.

‡Determination of water by Karl Fischer method (*first revision*).

A-4.1.1 Concentrated Sulphuric Acid — See IS : 266-1977*.

A-4.1.2 Standard Bromate — Bromide Solution — 0.1 N. Dissolve 2.784 g of potassium bromate and 12 g of potassium bromide in 1 000 ml of water.

A-4.1.3 Concentrated Hydrochloric Acid — See IS : 265-1976†.

A-4.1.4 Potassium Iodide Solution — 10 percent.

A-4.1.5 Standard Sodium Thiosulphate Solution — 0.1 N.

A-4.1.6 Starch Indicator Solution — 1 percent.

A-4.2 Procedure—Dissolve 0.7 g of the material in water and dilute to 500 ml. Pipette 50 ml into a glass-stoppered flask, dilute with 25 ml of water and add 50 ml of 0.1 N bromate — bromide solution and 10 ml of 5 N hydrochloric acid. Stopper this flask, shake and allow to stand for 5 minutes in the dark. Add 20 ml of 10 percent potassium iodide solution and titrate at once with 0.1 N sodium thiosulphate, using starch solution as indicator.

A-4.3 Calculation

$$\text{Resorcinol content, percent by mass} = \frac{0.1835 \times V}{M}$$

where

V = volume in ml of standard sodium thiosulphate used in the titration, and

M = mass in g of the material taken for the test.

A-5. DETERMINATION OF SULPHATED ASH

A-5.1 Apparatus

A-5.1.1 Muffle Furnace — capable of maintaining temperature within $800 \pm 25^\circ\text{C}$.

A-5.1.2 Crucible — of silica or platinum, having a capacity of 100 ml.

A-5.1.3 Desiccator — containing suitable desiccant.

A-5.2 Reagents

A-5.2.1 Concentrate Sulphuric Acid

*Specification for sulphuric acid (second revision).

†Specification for hydrochloric acid (second revision).

A-5.3 Procedure — Heat the crucible in the muffle furnace at $800 \pm 25^\circ\text{C}$ for 10 to 15 minutes, allow to cool sufficiently to enable it to be transferred to a desiccator. When cool, weigh it to the nearest 0.1 mg. Weigh 5 g of the dried material, accurately to the nearest 0.1 mg into the crucible and moisten with 2 ml of concentrated sulphuric acid. Heat the crucible and its contents gently over a bunsen flame. Allow the material to fume and evaporate to a residue in a well-ventilated fume cupboard. Then ignite the residue in the muffle furnace at $500 \pm 25^\circ\text{C}$ until it is free from visible specks of carbon. Cool the crucible in the desiccator and weigh to the nearest 0.1 mg. Repeat the heating for 15 minutes followed by cooling and weighing until two successive weighings do not differ by more than 0.5 mg.

A-5.4 Calculation

$$\text{Sulphated ash, percent by mass} = \frac{100 M_1}{M_2}$$

where

M_1 = mass in g of the residue, and

M_2 = mass in g of the material taken for the test.

A-6. TEST FOR FREE PHENOL

A-6.1 Procedure — Make 5 percent solution of the material in a beaker and warm the contents gently. The material shall be taken to have passed the test for free phenol if no odour of phenol is emitted.

A-7. MATTER INSOLUBLE IN WATER

A-7.1 Apparatus

A-7.1.1 Gooch Crucible

A-7.1.2 Oven

A-7.2 Procedure — Dissolve about 5 g of the material in about 500 ml of distilled water in a beaker and stir thoroughly. Heat to boiling if necessary. Cover the beaker with a watch-glass and allow it to stand for 4 hours at room temperature with occasional stirring. Filter the residue in a weighed gooch crucible, applying suction and wash the residue with distilled water. Dry the crucible in an oven maintained at $100 \pm 2^\circ\text{C}$ till constant mass is obtained. Weigh the crucible with residue and find out the total matter insoluble in water.

A-7.3 Calculation

$$\text{Matter insoluble in water, percent by mass} = \frac{M_2 - M_1}{M} \times 100$$

where

M = mass in g of the sample taken,

M_1 = mass in g of the crucible, and

M_2 = mass in g of the crucible with residue.

APPENDIX B

(Clause 4.1)

SAMPLING OF RESORCINOL

B-1. SCALE OF SAMPLING

B-1.1 Lot — All the containers in a single consignment of the material drawn for the same batch of manufacture shall constitute a lot.

B-1.2 For ascertaining the conformity of the material in the lot to the requirements of the specification, tests shall be carried out for each lot separately.

B-1.3 The number of containers to be selected for this purpose shall depend upon the size of the lot and shall be according to Table 2.

TABLE 2 SCALE OF SAMPLING

LOT SIZE			NUMBER OF CONTAINERS TO BE SELECTED
	(1)		(2)
Up	25	3	
26	50	4	
51	100	5	
101	150	6	
151	300	7	
301	and above	8	

B-1.3.1 These containers shall be selected at random from the lot. In order to ensure the randomness of selection, procedures given in IS : 4905-1968* may be followed.

B-2. TEST SAMPLES AND REFEREE SAMPLES

B-2.1 From each of the containers selected according to **B-1.3**, draw with an appropriate sampling instrument small portions of material from different parts of the container. The total quantity so drawn

*Methods for random sampling.

from each of the containers shall be approximately equal to thrice the quantity required for making triplicate determination for all the requirements given in the specification.

B-2.2 Mix thoroughly all the portions of the material drawn from the same container to give a representative sample for the container.

B-2.3 From the samples (*see B-2.2*) representing different containers selected in **B-1.3**, a small but approximately equal quantity of material shall be taken and thoroughly mixed to form a composite sample of the quantity sufficient to carry out triplicate determinations for the characteristics to be tested on the composite sample (*see B-3.2*). The composite sample so obtained shall be divided into three equal parts, one for the purchaser, another for the supplier and third for the referee.

B-2.4 The remaining portion of the material in the sample (*see B-2.2*) from different containers shall be divided into three equal parts, each forming an individual sample. One set of individual samples representing different containers selected shall be for the purchaser, another for the supplier and the third for the referee.

B-2.5 All the individual and composite samples shall be transferred to separate containers. These containers shall then be sealed airtight with stoppers and labelled with full identification particulars such as date of sampling, batch number and other important particulars of the consignment.

B-2.6 The referee sample consisting of a composite sample and a set of individual samples shall bear the seals of both the purchaser and the supplier and shall be kept at a place agreed to between the two. This shall be used in case of a dispute between the two.

B-3. NUMBER OF TESTS

B-3.1 Tests for description, crystallizing point and purity shall be conducted on each of the individual samples.

B-3.2 Tests for determination of remaining requirements given in **2.2** shall be conducted on the composite sample.

B-4. CRITERIA FOR CONFORMITY

B-4.1 The lot shall be declared as conforming to the requirements of this specification if **B-4.1.1** and **B-4.1.2** are satisfied.

B-4.1.1 Each of the test results on the individual samples satisfies the corresponding specification requirement given in **2.2** and Table 1.

B-4.1.2 All the test results on the composite sample satisfy the relevant specification requirements given in Table 1.

(Continued from page 2)

Members

Representing

SHRI F. M. FAQUIH	Morani Chemicals Pvt Ltd, Bombay
SHRI P. S. SHIVA KUMAR (Alternate)	
SHRI A. GANESH	Polyolefin Industries, Bombay
SHRI V. K. SUD (Alternate)	
DR S. KALYANARAMAN	SG Chemicals Ltd, Vadodara
DR S. SIDDHAN (Alternate)	
SHRI C. U. KHANDERIA	Polychem Limited, Bombay
SHRI WILSON ANDRAT (Alternate)	
SHRI K. B. KULKARNI	Indo-Nippon Chemical Co Ltd, Bombay
SHRIMATI M. N. UDESHI (Alternate)	
SHRI D. B. MEHTA	Excel Industries Ltd, Bombay
DR V. PURNAPRAJNA (Alternate)	
SHRI V. K. MENON	Amar Dye-Chem Ltd, Bombay
SHRI N. N. SHANBHAG	Herdillia Chemicals Ltd, Bombay
SHRI R. V. GOKHALE (Alternate)	
SHRI H. K. VENKATARAMAIAH	Hindustan Organic Chemicals Ltd, Bombay
SHRI A. D. PATANKAR (Alternate)	
SHRI A. V. VENKATESH	Indian Petrochemical Corporation Ltd, Bombay
SHRI R. SARANGRAJAN (Alternate)	